



Workgroup Summary On A Proposed Recommendation for the 8-Hour Ozone Nonattainment Area Designations

Introduction

This summary describes the process used to formulate a recommendation for the proposed 8-hour ozone nonattainment area boundaries. The area boundaries are based on the most current ozone monitoring data (2000-2002) and the March 28, 2000, U.S. Environmental Protection Agency (EPA) guidance for developing 8-hour designation recommendations. The department developed the “Technical Support Document for Determination of Nonattainment Boundaries in Missouri for the 8-hour Ozone National Ambient Air Quality Standard” to gather the information necessary to make this recommendation and address the EPA criteria in detail.

Summary of Recommendation

Two metropolitan areas within the state of Missouri currently violate the 8-hour ozone National Ambient Air Quality Standard (NAAQS): St. Louis (Missouri/Illinois) and Kansas City (Missouri/Kansas). Therefore, the proposed boundaries for 8-hour ozone nonattainment areas in Missouri include the counties of Clay, Platte, and Jackson counties, and the metropolitan planning organization (MPO) portion of Cass County within the Kansas City area, and Jefferson, Franklin, St. Charles, and St. Louis counties as well as the City of St. Louis within the St. Louis area. These counties contain the majority of Missouri’s precursor emissions within each metropolitan and surrounding area. In addition, these counties or portions of counties capture the contiguous urbanized portion of these two areas.

The remainder of the state of Missouri is recommended for designation as attainment/unclassifiable.

This recommendation has been developed through in-depth technical evaluations of the available information related to the EPA guidance along with stakeholder meetings and input. During these technical reviews and stakeholder meetings, many complex issues were raised and considered. Some of these issues included: the need to include potential permitted sources in the evaluation, the need to consider the ramifications of new counties being designated nonattainment, and the important question of frequent and significant contribution to 8-hour ozone concentrations from each county that was considered. The department believes this recommendation is a fair and accurate assessment of the information and incorporates contributions of the stakeholders associated with this process. However, this document does not reflect a consensus of the stakeholders that participated in the workgroup discussions.

Background

In July 1997, EPA promulgated a revision to the ozone standard and was obligated to designate the attainment status of all areas. EPA revised the NAAQS by changing the level of the standard from 0.12 ppm to 0.08 ppm, and changing the 1-hour averaging time of the standard to an 8-hour averaging time. The Clean Air Act (CAA) allows each state to recommend initial designations of the attainment status for all areas of the State. Section 107(d)(1) of the CAA allows each state an opportunity to recommend attainment/unclassifiable and nonattainment areas including appropriate boundaries. EPA can accept the recommendation or make modifications as it deems necessary.

In July 2000, the department submitted a technical boundary designation document and, on the Governor's behalf, submitted a recommendation regarding the classification of counties under the revised 8-hour ozone standard to EPA. For the Kansas City area, the department recommended that counties of Clay, Platte, and Jackson be designated nonattainment. For St. Louis, the department recommended Jefferson, Franklin, St. Charles, and St. Louis counties, along with the city of St. Louis be designated nonattainment. This recommendation included only the current 1-hour St. Louis ozone nonattainment area counties and the Kansas City 1-hour maintenance area counties. The designation recommendation was based on 1997-1999 air quality data and the technical information available at that time.

In December 2002, Governor Holden received a letter from the EPA requesting his updated, revised, or new designation recommendation and documentation regarding the attainment status of areas within Missouri for the 8-hour ozone standard. This original request asked for recommendations by April 15, 2003, but later was revised to allow states more time to develop the recommendations. The "new" deadline for submittal of recommendations is July 15, 2003. Ultimately, EPA is required to make a final decision regarding area designations by April 15, 2004, according to the U.S. District Court for the District of Columbia Consent Decree that was filed on November 13, 2002. This decree was designed to resolve a lawsuit filed by several environmental organizations to complete the designation process for the 8-hour ozone standard.

Federal Area Designations

Unclassifiable: any area that cannot be classified on the basis of available information as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant.

Attainment: any area that meets the national primary or secondary ambient air quality standard for the pollutant.

Nonattainment: any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant.

Criteria for Designation

EPA published a guidance document titled “Boundary Guidance on Air Quality Designations for the 8-Hour Ozone National Ambient Air Quality Standards” on March 28, 2000. This guidance was written to assist states in recommending nonattainment areas under the 8-hour ozone standard. In that guidance, the EPA recommends that the Metropolitan Statistical Area (MSA) or Consolidated Metropolitan Statistical Area serve as the presumptive boundary for 8-hour ozone nonattainment areas. The Missouri portion of the St. Louis MSA is comprised of the 1-hour nonattainment area and Warren and Lincoln counties. The Missouri portion of the Kansas City MSA includes the 1-hour maintenance area and Clinton, Ray, Lafayette, and Cass. In order to remove counties within the presumptive boundary or include counties outside the presumptive boundary, each state is required to address the following information as it relates to the boundary:

- Emissions and air quality in adjacent areas
- Population density and degree of urbanization including commercial development
- Monitoring data representing ozone concentrations in local areas and larger areas
- Location of emission sources
- Traffic and commuting patterns
- Expected growth
- Meteorology
- Geography/topography
- Jurisdictional boundaries
- Level of control of emissions sources
- Regional emission reductions

Process for Developing Recommendations

As stated previously, the department worked closely with county officials, representatives from various industry groups, local metropolitan planning organizations, and environmental groups in Kansas City and St. Louis to develop the boundary recommendations. The department received a number of requests to develop a workgroup in an effort to assist the state in developing the recommendation. In addition, EPA strongly recommended that each state coordinate and communicate with local partners and other stakeholders during this designation process. Mid America Regional Council (MARC) in Kansas City, and East-West Gateway Coordinating Council and the department’s St. Louis Urban Outreach Office in St. Louis hosted several separate workgroup meetings for interested parties. The department sought public input during workgroup meetings and provided opportunities for participants to provide written comments as well. The department is, and will remain, committed to keeping stakeholders involved in this process. The department will work with U.S.EPA Region VII to foster an understanding of this recommendation and encourage EPA to reflect our recommendations in their final designations.

Workgroup Discussion

In February 2003, the department conducted stakeholder meetings to discuss the boundary designation in St. Louis and Kansas City. In St. Louis, representatives from Ste. Genevieve, St. Francois, Lincoln, Warren, and Washington counties participated in these meetings and subsequent meetings as well as industry and environmental groups. In Kansas City, the workgroup consisted of the members of the MARC's Air Quality Forum and several county officials. The earlier roundtable discussions began by distributing information regarding the 8-hour designation process. Stakeholders from both sides of the state expressed concerns about the process and potential inclusion of the MSA and surrounding counties in the boundary recommendation.

For the St. Louis area, the department received written comments expressing the desire of several counties not be included in the St. Louis 8-hour ozone nonattainment area. The St. Louis area workgroup requested a draft technical document. This document was prepared and discussed at the April 25, 2003, workgroup meeting. This discussion also focused on determining a path to develop a recommendation for the boundary. The consensus of this meeting was the workgroup needed a draft recommendation for their review. Therefore, based on stakeholder input and the technical support document, a draft recommendation for the workgroup to consider was provided. At the May 16, 2003, meeting, workgroup members were requested to submit to the department comments or language changes to the recommendation by May 20, 2003.

In Kansas City, the MARC Air Quality Forum requested that a technical workgroup be formed to examine data related to air quality in the region. The workgroup, consisting of local, state and federal air agency staff, MARC staff, and representatives from counties outside the maintenance area, held several stakeholder meetings. At the April 29, 2003, meeting, the department requested that the Forum provide a recommendation regarding the 8-hour air quality boundary for the Kansas City area. The discussion that followed addressed the criteria in the EPA guidance and focused on counties that have a potential to contribute to downwind ozone in the area. The general consensus of the workgroup was to include the portion of Cass County within the MPO boundary in addition to the existing 1-hour maintenance area in the 8-hour ozone nonattainment boundary. The recommendation was approved by the MARC Air Quality Forum and the Total Transportation Policy Committee on May 12 and May 20, respectively.

Criteria for Establishing Boundaries

Although every nonattainment area is unique, the recommendations for the St. Louis and Kansas City areas were consistently guided by the following principles:

- For existing 1-hour ozone nonattainment/maintenance areas, the recommendation is to include them in the 8-hour ozone boundary.
- For the counties surrounding the existing 1-hour boundary, the recommendation will be based on one of the following circumstances:

1) Unless EPA grants an exception, any monitor that violates the 8-hour ozone standard would place the county in an 8-hour nonattainment area. Air monitoring data in 2003 may be used to determine compliance with the ozone standard prior to EPA final decision. This is consistent with the nonattainment area boundaries for the 1-hour ozone standard.

2) Using the department's technical support document, counties or portions of counties that exhibit a pattern of frequent and significant contribution will be included in the nonattainment area. The review of contributing factors must be conducted in a consistent manner. Due to the fact each of the counties has unique characteristics, the characteristic factors of each county are compared with the other counties and evaluated in a collective fashion. Any significant changes in one of the contributing factors such as future emission growth may alter the area boundaries prior to EPA's final decision.

Section 107(d)(1)(A) of the Clean Air Act defines a nonattainment area as any area that does not meet or that contributes to nearby areas not meeting the ambient air quality standard. The EPA guidance allows states to consider at a minimum the above factors when establishing boundaries. The implementation of control strategies that will eventually be used in the attainment demonstrations for these areas is a separate process and is not a primary consideration in the boundary evaluation. It is premature to consider control strategies in this process when the control strategies are not finalized.

In order to determine trends within each metropolitan area and provide the most comprehensive set of information, the department chose to begin the evaluation with counties within each MSA and counties that border the MSA in each metropolitan area. Therefore, in Kansas City, the counties included for consideration were Cass, Clay, Clinton, Jackson, Lafayette, Platte, and Ray inside the MSA and Bates, Buchanan, Caldwell, Carroll, DeKalb, Henry, Johnson, Pettis, and Saline outside the MSA. In St. Louis, the counties included for consideration were: Franklin, Jefferson, Lincoln, St. Charles, St. Louis, St. Louis City, and Warren inside the MSA and Crawford, Gasconade, Montgomery, Pike, St. Francois, Ste. Genevieve, and Washington outside of the MSA.

The first consideration for area designation is based on air quality data to determine if the area violates the air quality standard. The monitoring network for the 1-hour areas shows that the Kansas City and St. Louis metropolitan areas are not attaining the 8-hour standard based on 2000-2002 monitoring data. As noted in the technical support document (Tables 1A, 1B, 7A, and 7B), the current design values for Kansas City and St. Louis are: 85 ppb and 90 ppb, respectively. The currently violating counties within Missouri are Clay (Kansas City), St. Charles, St. Louis County, St. Louis City and Jefferson (St. Louis). Therefore, these counties are included in the 8-hour area.

The second consideration is to determine if an area contributes to nearby areas not meeting the ambient air quality. This consideration is much more difficult and requires the evaluation of the factors included in the March 28, 2000, EPA guidance. In determining which areas are contributing, the department gathered information and analyzed it with respect to these factors. The proposed recommendation considered factors described in the technical document such as emission size and location, predominant meteorological conditions that lead to high ozone

concentrations, population and urbanization of counties, traffic patterns and transportation corridors, existing jurisdictional boundaries, and population/emission growth. These factors are summarized by county in terms of supportive or non-supportive of contributions. The question is whether the information gathered supports the assumption that the county has a frequent and significant contribution to downwind ozone concentrations that violate the 8-hour ozone standard. A close evaluation of the criteria seems to indicate that if a county does not have a significant amount of precursor emissions, it should not be included in the designated area. Also, the idea of collective contribution to ozone problems that was prevalent in the Ozone Transport Assessment Group and NOx SIP Call process leads to the fact that all precursor emission sources contribute to ozone formation. Yet, EPA has decided that only “nearby areas” should be designated nonattainment for downwind impacts. These two factors eliminate a number of counties in Missouri from inclusion in the nonattainment boundaries. Also, the incorporation of the existing 1-hour areas in the boundary is straightforward since the evaluation demonstrates a sizable contribution for each of these counties in Missouri, and EPA has stated that the 1-hour areas serve as a starting point for this process. In evaluating significant contribution, counties are compared to other counties within the MSA to determine order of potential contributions.

Therefore, after the initial screening, the following counties in Missouri required additional evaluation:

Kansas City: Buchanan, Cass, and Henry

St. Louis: Lincoln, Pike, St. Francois, Ste. Genevieve, and Warren

Since the EPA presumptive boundary for the Kansas City area includes counties in the “eliminated group”, more explanation is necessary to explain the department’s decision with respect to these counties.

Clinton, Lafayette, and Ray counties are outside the predominant wind direction for elevated ozone concentrations within the area and are not likely to have frequent contributions to elevated ozone in the Kansas City area. The population of each county is between 1 and 2 percent of the MSA and each is less than 35,000 people. These counties contain a very small degree of urbanization and are somewhat distant from the metropolitan core. Overall, the precursor emissions from these counties are considerably smaller than the other MSA counties in Missouri and the likelihood of significant contribution to elevated 8-hour ozone concentrations is small.

Buchanan County is in a separate metropolitan statistical area (St. Joseph), is quite distant from the contiguous Kansas City metropolitan area, and does not have a strong commuter linkage to the area. Nonetheless, large point source emissions, a population of over 80,000 people, and increased urbanization near St. Joseph point to a potential significant contribution from this county to the Kansas City area. However, the meteorological analysis demonstrates that Buchanan County does not contribute to elevated ozone concentrations in Kansas City (primarily downwind of the area).

Henry County is not part of the Kansas City MSA and is somewhat distant from the metropolitan area. A population of less than 25,000, small Vehicle Miles Traveled (VMT), no strong commuter linkage to the area, and limited urbanization lead to exclusion of this county from the nonattainment area. However, the meteorological analysis does indicate that Henry County

could contribute to elevated ozone concentrations within the area. The single biggest emission indicator of contribution is point source NOx emissions. The vast majority of point source NOx emissions in Henry County originates at the Montrose Power Plant which is included in Missouri's statewide NOx transport rule at 0.35 lb/MMBTU. Based on the collective information, the recommendation is to exclude Henry County from the Kansas City 8-hour ozone nonattainment boundary.

Cass County is part of the Kansas City MSA and the northern portion of the county is part of the contiguous metropolitan area. The population of Cass County is currently over 80,000 with significant expected growth in the future (highest in the MSA). Much of this growth is expected to occur in the northern part of the county, specifically, in the urbanized portion of the county that is contiguous to the Kansas City area. Commuting data shows strong commuter linkage to metropolitan complex and the county has a large total VMT. The meteorological evaluation demonstrates that Cass County is upwind of the Kansas City area during 8-hour ozone episode conditions. However, Cass County does not have significant point source emissions and the ozone concentrations monitored in Cass County are the lowest in the area. During the review, it was noted that 56 percent (45,936) of the residents in Cass County reside inside the MPO boundary. Also, a considerable amount of VMT in the county occurs in the MPO portion of county. It is estimated that 37.5 percent (949,104 VMT) of the total county VMT in the MPO portion. Based on the urbanization, connectivity, and population base of northern Cass County, the department concurs with the Air Quality Forum recommendation that the portion of Cass County within the metropolitan planning organization (MPO) boundary be included in the 8-hour nonattainment boundary. Attached is a Cass County MPO area map with latitude and longitude coordinates to be used for designation purpose. The following is the legal description of the MPO area within Cass County: Starting at the intersection of Kansas/Missouri State line and southwest corner of Section 30 of T 46 N, R 33 W (in Cass County); and thence east along the southern boundary of the above mentioned section to the southeast corner of Section 29 of T 46 N, R 30 W; and thence diagonally north-east to the intersection of northwest corner of Section 1 of T 46 N, R 30 W.

In the St. Louis area, Pike County is not part of the MSA and is distant from the metropolitan area. A population of less than 20,000, small VMT, no strong commuter linkage to the area, and limited urbanization lead to exclusion of this county from the nonattainment area. In addition, the meteorological analysis shows limited reason to believe Pike County contributes to ozone concentrations on a frequent basis. The single biggest emission indicator of contribution is point source emissions. As with all the counties, the collective information must be considered to determine the need for inclusion. Based on the distance from the 1-hour nonattainment area, the rural nature of the county, the lack of connectivity, and its predominantly downwind nature, and notwithstanding the magnitude of point source emissions, the department recommends Pike County not be included in the St. Louis 8-hour ozone nonattainment boundary.

Warren and Lincoln counties are part of the MSA and their population is growing at a significant rate (greater than 40 percent from 1990-2000). However, the total populations of Warren County and Lincoln County are less than 25,000 and less than 40,000 respectively and the amount of precursor emissions in these counties are smaller than the majority of the other surrounding and MSA counties. In addition, these counties are downwind of the core 1-hour nonattainment area

under the predominant wind direction. Therefore, the recommendation is to exclude Warren and Lincoln counties from the St. Louis 8-hour nonattainment area.

St. Francois County is not part of the MSA and does not have a strong commuter linkage to the metropolitan area. The population, urbanization, and VMT of St. Francois County are reasonably supportive for inclusion in the 8-hour boundary. The amount of total emissions from St. Francois County is substantially smaller than most of the current 1-hour nonattainment area, but slightly higher than the remaining Missouri counties. While St. Francois County is upwind under predominant winds for the St. Louis area, the amount of emissions and connectivity to the metropolitan area are not indicative of frequent and significant contribution to elevated ozone concentrations in St. Louis. Therefore, the recommendation is to exclude St. Francois County from the St. Louis 8-hour nonattainment area.

Ste. Genevieve County is not part of the MSA and does not have a strong commuter linkage to the metropolitan area. In addition, the population, urbanization, and VMT are not supportive of inclusion within the 8-hour nonattainment area. However, Ste. Genevieve County has moderately high emission rates for NO_x and VOC, 15.7 and 4.5 tons per day (TPD), respectively, and potential point source emission growth that would increase these emission totals dramatically. (This “potential point source emission growth” is based on a pending application and an issued permit currently under appeal.) As a comparison tool, Franklin County has 55.4 TPD NO_x and 17.3 TPD VOC. Ste. Genevieve county is upwind under predominant winds for the St. Louis area, has monitored 8-hour ozone violations in the past, and has the potential for point source growth. With the understanding of the point source and growth information, the current level of emissions, small population, and lack of urbanization lead to the recommendation that Ste. Genevieve County be excluded from the St. Louis 8-hour nonattainment area. However, if the additional point source growth occurs as expected, the rationale for inclusion of Ste. Genevieve County increases dramatically due to downwind ozone impacts from this sizable emission growth.

In summary, the proposed 8-hour ozone nonattainment boundary recommendations for Missouri are the same as the one-hour maintenance areas, plus the northern portion of Cass County within the Metropolitan Planning Organization (MPO) boundaries. This recommendation is based upon the 2000-2002 monitored ozone data and criteria contained in the EPA guidance for designation. In addition, the attached technical review supports the criteria in the aforementioned EPA guidance document. Although the recommendation for nonattainment area boundaries is smaller than the EPA presumptive boundary (the MSA), it is important to note that Missouri will evaluate control strategies on the surrounding MSA and other possible contributing counties in the 8-hour ozone State Implementation Plan. The department will consider implementing new control measures including the implementation of existing reasonable available control technology and New Source Review program requirements for industrial sources located outside the nonattainment boundaries if in the future, these counties are found to be contributing to the nonattainment area.